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# AMERICAN JOURNAL OF PHARMACY AND THE SCIENCES SUPPORTING PUBLIC HEALTH

Since 1825

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# E D I T O R I A L

## IN MEMORIAM

CHARLES HERBERT LAWALL

**I**NCREDIBLY silent is the voice—strangely inactive is the mind of one, who, over the trail of many a decade, served the world in which he worked, served it with intelligence, with diligence and with honor. His had been a vigorous life, pulsing with a fullness of service.

His versatile brain brought him to a varied array of endeavors, and left him useful and comfortable wherever it chanced to convey him.

Afield, he was quite at home with all of God's green children, flower and fern, and tuft and tree,—rocks he understood, and the stars,—studied them and knew them with a rare intimacy,—soil and sod and many waters,—all of Nature he surveyed with a keen delight and yet a keener understanding.

Long had he lingered, and deep his draughts at the Pierian spring of literature. Especially was he fond of the old books of his own profession. And so he lived with ancient men, whose tongues for him still wagged in merry converse, though their bodies had long since turned to silent dust. And yet for all his long-gone comrades of the dusty tomes, he kept his spirit youthful.

Out of the vastness of his mind he could summon, accurately, and at an instant's notice, words, sweet sung by Shakespeare, or one of Shelley's velvet sonnets.

Else it might have been a fragment of an ancient work on drugs, or a seldom quoted bit of Plato's wit.

Anywhere—everywhere in the world's literature was his mental camping place, for he had always been a voluminous, remembering reader.

And how helpful a spirit he owned. Today in the professions serving public health are hosts of men and women who owe their urge and surge to Dr. LaWall's guidance. To the end he was a



**CHARLES HERBERT LAWALL**

**1871-1937**

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mentor, a directionist, who wisely started youngsters toward the right and to the light.

And he was modern. He had no grievances with the present despite his love of lore, nor ever showed he a wasted love for the what had gone. New days were the good days for him—and to the last he held to a fine fluidity of mind and heart—and he *knew* that the world was progressing.

He was a productive worker, in all of the varied fields wherein he so fruitfully labored, infinitely patient with every undertaking, and with an abiding faith in his fellow workers. Very friendly to but a fortunate few, he was beloved and respected by all. Enthusiastic with the worthwhile, he was frigid to buncombe. Highly appreciative of all art, he chose without pose or effect, always the thing that was beautiful.

He was attuned to the finer elements of all music, though rarely expressing it—in painting and sculpture, in written prose and poetry, his preferences were always discriminate.

Beyond everything he had an ability to impress, without effort his deep sincerity and his fitness for leadership.

In the hearts of all who knew him, his going home has left a hurt, and yet a glorious remembering, and a long knowledge of the good that ever he did for his fellow man. In his going I have lost the one great friendship of my life. I shall, I trust, have other friendships. But they shall be silver—his was gold. For we two had done a lot of togetherness.

Together we had tasted the blessed privilege of field communion, and we had worked and played, walked and talked and fished together in languid happiness. I shall never forget all the little things that made our days of friendship and fine rememberings. So long as I live, there shall be a longing for him, and yet a knowing that wherever he is, having done with earthly ways, he is happy in a Heaven where the hills and valleys and many waters will forever be his belonging places, where he shall be digging into ancient books, and somewhere in a glorious corner, with purpose and with a waiting joy, prepare his little garden of "excellent herbs and exquisite blooms"—time without end.

As my mentor, my friend, I shall never forget him. How could I forget him?

Never a line to throw  
Out there upon the limpid blue  
Where winds from the sand dunes blow.  
Not ever down by Longport fish  
But for my fishing comrade wish.

How could I forget him?

All the little things  
That made our days of friendship  
And fine rememberings—  
And I should be of little worth  
And walk a very empty earth.

IVOR GRIFFITH.

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#### The Liberal Educator

In the passing away of Dean LaWall, his beloved wife has lost a husband and a real companion, his college has lost a dean and a professor, his profession has lost its most shining light, and the world has lost a man—a man of whom it can be truly said that he conformed to Huxley's definition of one who had a liberal education, to wit:

"That man, I think, has had a liberal education who has been so trained in youth that his body is the ready servant of his will, and does with ease and pleasure all the work that, as a mechanism, it is capable of; whose intellect is a clear, cold, logic engine, with all its parts of equal strength, and in smooth working order; ready like a steam engine to be turned to any kind of work, and spin the gossamers as well as forge the anchors of the mind; whose mind is stored with a knowledge of the great and fundamental truths of nature and of the laws of her operations; one who, no stunted ascetic, is full of life and fire, but whose passions are trained to come to heel by a vigorous will, the servant of a tender conscience; who has learned to love all beauty, whether of nature or art, to hate all vileness, and to respect others as himself."

Such a man was Charles H. LaWall. Generations of pharmacists shall not look upon his like again.

**MEMORIAL SERVICE FOR DR. CHARLES H. LAWALL****Wednesday, January 12, 1938****Held in the Auditorium of the Philadelphia College of Pharmacy and Science**

A tribute to the active, useful, kindly life of the late beloved Charles H. LaWall, Dean of Pharmacy of the College, who went to his rest the twelfth day of December, 1937, mourned by a host that knew his greatness.

Life's work, well done,  
Life's race, well run;  
Life's work, well done,  
Then comes Rest!

**H**UNDREDS of admirers and friends of the late Dean LaWall gathered at the College Hall to think of him and to do honor to his memory. Men and women, in all walks of life, comprised the audience,—his former pupils, associates in his various fields of endeavor, representatives of the governments, co-workers in the associations, whom with he had so diligently and usefully served, book lovers, historians, scientists, his everyday friends and neighbors, all attended to share in tearful reverence the memories of the good that this great man had done before his going home to rest.

His beloved wife, "who has helped me in my work, and who has shared in my play, who does not object when I bring old or new books home, and who endures in silence the chaotic appearance of our home, during periods when manuscript is in preparation or proof is being read; whose stimulating companionship has made all my work possible"†—his beloved wife—she, too, was bravely present.

Dr. Wilmer Krusen, President of the College, kinsprit and intimate friend of the late dean, presided, and with gentle, genuine heart and voice, at once, inspired the meeting with his brief and beautiful opening eulogy, which concluded with these remarks:

"Now the man has disappeared and belongs to God and Eternity. Because his day on earth was noble and fruitful he will always be an inspiration to those who come after him."

"One who never turned his back but marched breast forward,

Never doubted clouds would break,

Never dreamed, though right were worsted, wrong would triumph,

Held we fall to rise, are baffled to fight better,

Sleep to wake."

†From the dedication "4000 Years of Pharmacy."

The program, which follows, was a rare tribute to a rare and a fine personality and herewith are printed the addresses delivered and a few only of the hundreds of communications, which came to carry condolence to those he left behind, to grieve his loss, and yet to carry on his glorious work.

Speaking on behalf of:

- The Board of Trustees of the College..Col. Samuel P. Wetherill, Jr.  
The Faculty .....Dr. J. W. Sturmer  
The American Pharmaceutical Association .....Dr. E. F. Kelly  
The American Association of Colleges of Pharmacy .....Dr. Ernest Little  
The Revision Committee, United States Pharmacopœia .....Dr. E. Fullerton Cook  
The Franklin Institute of the State of Pennsylvania .....Dr. Henry B. Allen  
The State Board of Chemists, Bureau of Foods and Chemistry .....Dr. Elmer E. Harter, Jr.  
The American Journal of Pharmacy..Dr. Ivor Griffith  
The Wagner Free Institute of Science..Dr. Samuel C. Schmucker  
The Pennsylvania Pharmaceutical Association .....Mr. Ambrose Hunsberger  
The Alumni Association, Philadelphia College of Pharmacy and Science .....Mr. John E. Kramer  
The Local Branch of the American Pharmaceutical Association .....Dr. William A. Pearson  
The Student Body of the Philadelphia College of Pharmacy and Science .....Mr. Warren R. McPeck

## TRIBUTES

### THE BOARD OF TRUSTEES OF THE COLLEGE

Represented by Col. Samuel P. Wetherill, Jr., Chairman of the Board

MR. PRESIDENT AND FRIENDS OF DR. CHARLES H. LAWALL:

IT HAS been my privilege as a member of the Board of Trustees of the Philadelphia College of Pharmacy and Science to observe the influence of the College on the young men and young women who come here to the college and go out into the world. It has also been my privilege to note Dr. LaWall's influence over them and his associates as well as over the minds of all of us who came into contact with him.

You will undoubtedly hear today a long list of Dean LaWall's achievements—scientific, civic and professional. In these necessarily brief remarks it is not my function to dwell upon those aspects of his work, but I do strongly feel the urge to say to you that his influence on our times has been profound. For many years to come the character of Charles H. LaWall will find its expression in the high standards of our College which so largely through him has remained true to its best traditions and has radiated throughout the profession intelligence, integrity, civic virtue and professional ethics. He has been a great and moral influence in his community and has made a lasting contribution to the profession of pharmacy, aside entirely from his scientific work in that his character, his intelligence and his loyalty to public interests always took precedence over every other consideration.

Therefore, we who have had the privilege of serving with him, feel that we have been indeed fortunate in our contact with him. I know that the entire Board of Trustees shares my conviction that the prestige of the College and its effectiveness in the community have been maintained on a very high plane through the personality and character of our friend, Dean Charles H. LaWall.

**THE FACULTY OF THE PHILADELPHIA COLLEGE OF PHARMACY AND SCIENCE, WHERE FOR THIRTY-SEVEN YEARS, DEAN LAWALL, LABORED FRUITFULLY AND WORTHILY, WAS REPRESENTED BY DEAN J. W. STURMER.**

**C**HARLES HERBERT LAWALL, pharmacist, analytical chemist, writer, research worker and educator, lived a busy and a truly useful life—useful to the profession which he adorned, to the college which he served so enthusiastically and so well, and to the community in which he made his home.

His contributions to science and to the literature of pharmacy are many and varied. He was a member of the pharmacopoeial revision committee for nearly four decades, helped to revise *Remington's Practice of Pharmacy*, was associate editor of the *United States Dispensatory*, compiled the history of *Four Thousand Years of Pharmacy*, and was the author of an imposing list of scientific papers.

His activities as a constructive worker in pharmaceutical associations spanned the period during which pharmacy and pharmaceutical education adjusted themselves to present-day conditions, and he played a prominent part in these readjustments. He served on many committees and filled numerous offices. He was the president of the Pennsylvania Pharmaceutical Association in 1911, of the American Pharmaceutical Association in 1919, and of the American Association of Colleges of Pharmacy in 1923.

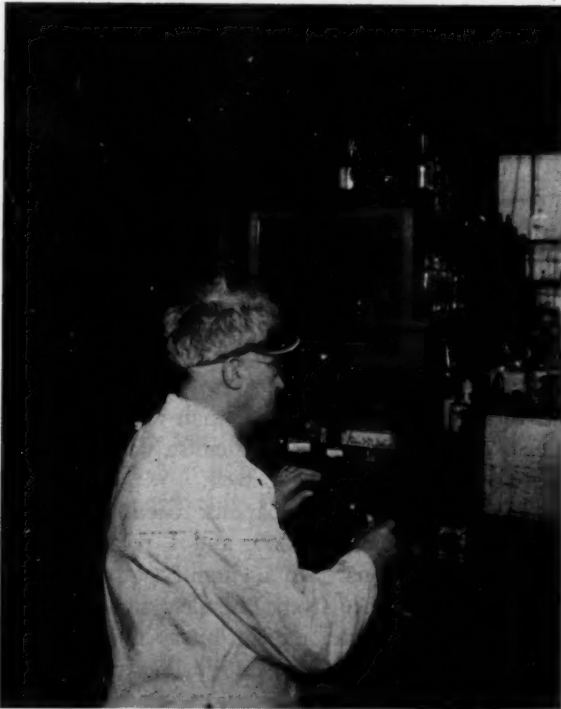
His career as an educator began in 1900, when Dean Remington selected him for the instructorship in pharmacy, in which capacity he functioned so efficiently that in 1906 he was promoted to associate professorship; and as a professor he attained to nation-wide recognition as an inspirational teacher. Indeed, it may be said that notwithstanding the imposing total of his other accomplishments, his greatest contribution to American pharmacy was made in the capacity of a teacher.

How it came to pass that Dean LaWall acquired the wealth of knowledge which he possessed and that he attained to the high degree of proficiency which he exhibited, is difficult of explanation on the mere basis of his formal college training. Indeed, it is quite evident that he was in large measure self-taught. To be sure, nature had endowed him generously, for he had a keen mind and a retentive memory. But he was most fortunate, also, in the environmental



influences operative in his childhood, in his youth, and in his early manhood, for it is to these influences that we must attribute his admirable character traits and his high ideals.

Of German and Huguenot ancestry, he was born in Allentown, Pennsylvania, the son of a pharmacist, and was reared in the professional atmosphere of an old-time apothecary shop. The training received in his father's store was supplemented by apprenticeship in the firm of Moyer Brothers, who at that time conducted a wholesale and retail drug business in Bloomsburg, Pennsylvania, to which city the LaWall family had moved when young Charles was a schoolboy. It was in Bloomsburg that he completed his high school course, and there also that he received training in the fundamentals of teaching methods in an institution now known as a State Teachers' College.



THE DEAN AT WORK

In 1891, at the age of twenty, after he had served the full time of apprenticeship then required for admission to a college of pharmacy, he came to Philadelphia and enrolled in the institution in which he was destined to become the helper and disciple of Remington. Professor Remington was instrumental, also, in obtaining a place for this brilliant and industrious student of his in the chemical laboratory of the Smith, Kline, French Company, where young LaWall could profitably employ his spare time. It was in this laboratory that he obtained the foundational training in the analysis and the standardization of medicines, a field in which, in his maturer years, he attained to the status of an expert. It was his activity in the field of analytical chemistry that brought him to the attention of Dr. Henry Leffmann, a celebrated chemist and scholar who conducted a chemical laboratory in Philadelphia. Dr. Leffmann, who delighted in creating opportunities for worthy young men, took LaWall into partnership; and, when Dr. Leffmann retired from active practice to devote his entire time to research and to literary work, LaWall, the junior partner of the firm of Leffmann and LaWall, chemists, became the sole owner of the laboratory.

As the years passed, this laboratory gained in prestige and acquired new connections. Dr. LaWall became a consultant for pharmaceutical manufacturers; he functioned as food and drug-analyst for the Pennsylvania Department of Agriculture; he served in a similar capacity for the Federal Government under the direction of Dr. Harvey W. Wiley, then chief chemist for the Department of Agriculture; he became the chemist for the Pennsylvania Board of Pharmacy; and in 1931 he became a member of the International Committee for the Study of Opium Assay.

We marvel at the versatility of this man who succeeded in attaining to eminence in so many fields—as chemist, writer, teacher, dean,—who did so much, and who did it so well.

I met him first at the Indianapolis meeting of the American Pharmaceutical Association, in 1906, and I recall that he took an active part in the discussions. To an inquiry, at one of the sessions, as to his identity, a member from Philadelphia answered, "That is young LaWall, the quiz-master extraordinary under Remington." I have never forgotten that characterization, "extraordinary," a word so frequently misused, but an appropriate and a happy choice in characterizing Charles H. LaWall, for he was just that—extraor-



dinary. Twenty years of close association with him in teaching and in the work of the dean's office, have permitted me to see how fitting had been the Philadelphian's statement at the Indianapolis meeting in 1906.

Dean LaWall's wealth of knowledge, and his talent for clear reasoning contributed toward his success in imparting the subject matter of the course in pharmacy; but it was his innate goodness and his admirable character which made him a powerful influence in the lives of young pharmacists who passed through his classes. He inculcated—not only by precept, but also by example—the homely virtues on which are built our codes of professional ethics, and the tenets of good citizenship—the same virtues which make for true success in life. The moral, elevating, refining influence of Charles H. LaWall, forthright and true, on the thousands of students who in the thirty-seven years of his service on the faculty attended his lectures, is of course incommensurable and incalculable; but we know that it has been great, and we may be sure, also, that long after the passing years have dimmed the remembrance of the factual knowledge which the students gained from his lectures, there will continue to be a response in the professional conduct of his former students to what he stood for and taught about integrity and honor and duty and dependability and diligence and courage and faith. Thus his influence in American pharmacy will long endure; and when the history of this generation of pharmacists is written as a sequel to *Four Thousand Years of Pharmacy*, the life of the author, LaWall, who believed so sincerely in the ideals of “the fathers of old,” will be recorded to serve as an inspiration to future generations of students.

We of the College, trustees, faculty, students and former students, can never forget him. We hold him in affectionate remembrance, not only because of his varied achievements and the credit which he reflected on his Alma Mater, but especially because of his nobility of soul and his lovable personality.

## THE AMERICAN PHARMACEUTICAL ASSOCIATION

Represented by Dr. E. F. Kelly, Secretary of the Association

ON behalf of the American Pharmaceutical Association, I wish to express deep appreciation for the invitation to be represented here and to take part in this very appropriate memorial to one of its most able and distinguished members.

Dr. LaWall joined the Association in 1896, three years after graduation from this institution, and became a Life Member in 1930, when Mrs. LaWall also became a Life Member. The records do not show who proposed him for membership, but the report of the Chairman of the Membership Committee for that year states that "Two hundred and forty-three persons were recommended as proper persons to become members of the Association."

As would be expected, Dr. LaWall must have become active in the work of the Association as he was appointed to the Chairmanship of the Committee on Weights and Measures in 1905 to succeed the late Frank G. Ryan whom he also succeeded as an instructor in this college. His first paper, on Tincture of Iodine, was presented in 1907 before the Section on Practical Pharmacy and Dispensing. Since that time his name appears as author or co-author of a paper or papers at every annual meeting with but few exceptions. These papers cover a wide variety of subjects and indicate the breadth of his interest in the professional and scientific phases of his chosen profession.

The executive work of the Association also occupied his attention comparatively early in Dr. LaWall's membership. In 1907 and again in 1908, he was elected secretary of the Section on Education and Legislation and its chairman in 1909; secretary of the Scientific Section in 1911; vice-president in 1915; president in 1918, presiding at the New York meeting in 1919 when the Remington Medal was first awarded. He served continuously since that time as a member of the Council; was vice-chairman in 1919 and from 1926 to 1934; and was chairman in 1920. He served on many committees and boards during his long membership and seemed always to have time to give to the work of the Association.

It is yet too early to accurately estimate the value of Dr. LaWall's services to the Association or to attempt to compare the value

of his many services, and time does not permit even a general review of these services on this occasion. However, two of his contributions to the ever widening program of the Association seem to be outstanding and to merit particular comment at this time.

In his presidential address, Dr. LaWall emphasized the value of the code of professional ethics, adopted by the Association in its first year of existence, in the following language:

"I feel that we are derelict in our obligations to the past, our duties to the present and our responsibilities toward the future in not paying proper attention to the importance of our code of ethics. The soul or essence of a professional organization is its code of ethics. That of the A. Ph. A. is not given sufficient publicity. It has never, to my knowledge, been revised and brought up to date and it is so long since it has been printed and circulated that nobody remembers when that last happened."

and his first recommendation was that a special committee be appointed to immediately revise the Code. Upon request, Dr. LaWall accepted the chairmanship of this committee and in his customary scholarly thoroughness submitted at the next meeting an historical review of the pharmaceutical codes which had been adopted or suggested in the history of the profession. At the next meeting, the committee submitted a revised code which was adopted by the Association on August 17, 1922. In the review just mentioned, Dr. LaWall embodied a statement which to me is characteristic of the man and is eloquent of the attitude toward his profession which he practiced as well as preached:

"Ethics is the science of human duty. A code of ethics is a carefully formulated system of principles or rules of practice for the guidance of a particular group of individuals, such as the members of a profession.

The Mosaic law is a code of ethics in the broadest sense as applied to humanity at large.

The development of codes of ethics is an indication of the evolution and growth of moral consciousness. Ethics and morality are not always synonymous; neither are ethics and legality. 'Right' and 'wrong' are terms which have different meanings and interpretations at different periods.

The necessity for specific principles for the guidance of individuals having common interests, in addition to the tenets of religion and morality, has been recognized from the earliest historical periods."

The other contribution to which I wish to refer came under my personal notice, and was in connection with the so-called reorganization of the Association which culminated in 1923. Dr. LaWall served as chairman of the special committee which considered the various suggestions and submitted the plan which was finally adopted with modifications. I was impressed with his evident desire to hold onto that which had been proved to be basically sound and yet to so reorganize the Association as to make it responsive to the present day demands. His attitude in this effort was in keeping with that in respect to the Code of Ethics, and again illustrated that sound balance which he maintained between conservatism and progression, in all that he said or did.

In the Association's activities, Dr. LaWall was primarily the scholar, the thinker and the author; in addition, he was a doer and an able and tolerant counselor. The American Pharmaceutical Association has been rich in the character and attainments and devotion of those who have taken the major part in its program and who have been honored with its offices and distinctions. Charles Herbert LaWall, having discharged his obligation to the Association, has written his name indelibly in its records and has taken his place among those now gone whose services the Association will cherish as long as it will exist.

# THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

Represented by Dr. Ernest Little

I CONSIDER it a high honor to be allowed to represent the American Association of Colleges of Pharmacy at these memorial services for our departed friend, Dr. Charles H. LaWall.

It would be presumptuous on my part to attempt to tell you anything of the work and achievements of Dean LaWall, even in the restricted field of pharmaceutical education. You are his friends. You have seen him in action and have watched with interest and satisfaction the development of many projects for which he was primarily responsible, or in which he played an important part.

A rereading of his presidential address delivered at Asheville, North Carolina, in September, 1923, at the conclusion of his year as president of the American Association of Colleges of Pharmacy will serve as a reminder of his forward-looking vision in the field of pharmaceutical education and of the enthusiasm and the clarity of his presentation. It is indeed noteworthy, how many of his recommendations were later accepted as association policy and regulations.

One of the most reassuring circumstances with which we are confronted today is the fact that we have so many well qualified fine young men in the field of pharmacy who stand ready to assume positions of responsibility when they are called upon to do so; young men, not only of thorough formal training and adequate professional experience, but men of character and personality and reliability as well.

But even encouraging circumstances of this sort seem to furnish us with so little comfort when a leader of the type of Dean Charles H. LaWall is taken from us. We have lost not only a capable worker in the field of pharmacy, but a loyal, sincere friend and associate, who will be greatly missed in the days to come.

Still, I do not feel that an occasion such as this need be entirely one of sorrow and despair.

It is true that Dr. LaWall's pleasant smile, his hearty laughter, his cordial handshake and his friendly "hello" will no longer be seen and heard and felt in the halls of this old college where he has worked so diligently for many years. Yet I believe that, in a manner equally real, he will still be among us in the years to come and that his influ-

ence and personality as well, will be so definitely felt as to inpress upon us the fact that the soul of Dr. LaWall, the only real entity in God's scheme of things, is and will remain among us. It will remain, not only as a pleasant memory, but as a living, dynamic force which will bring action and continued progress for those projects with which he was associated and comfort and perhaps even joy to his loved ones.

Each one of us can, with little effort, recall many men whose names are recorded on the pages of history, who seem to have begun to live in the most real sense, when they departed from their earthly bodies, men who became great leaders of their time and who left behind them an influence and a soul, which will continue to grow and develop and enlarge its field of influence through all eternity. So it is with Dr. LaWall. If we can but accept and appreciate this thought, his departure will be made easier and his life more fruitful.

On a stone marking the burial place of Benjamin Franklin you will find the following inscription, "The body of Benjamin Franklin, Printer, like the cover of an old book, its contents torn out and stripped of its lettering and gilding, lies here food for worms. Yet the work itself will not be lost. For it will, as he believes, appear once more in a new and more beautiful edition, corrected and amended by its author."

That is simple. That is profound. It constitutes the kind of philosophy which is in keeping with the life of Dr. LaWall and which brings quiet serenity at times of great loss and great need.

Those of you who have been to London, and many of you who have not, know that Sir Christopher Wren, who was responsible for the beauty of so many churches in and about London, lies buried in Saint Paul's Cathedral, which is probably his greatest masterpiece.

His epitaph, found in this beautiful structure, also seems appropriate to this occasion. It reads as follows:

"If you would see his monument,  
Look about you."

Is it not appropriate that we should repeat "If you would see Dr. LaWall's monument, look about you"?

If we will look through eyes and listen through ears tuned to the reception of values which are profound, we shall see not only the halls and laboratories of the college which he so dearly loved



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and toward the development of which he so richly contributed. We shall vision the spirit of pharmaceutical education which served as his great challenge. We shall also sense and very definitely formulate the spirit of this relatively small group of his many friends. We shall vision an attitude of mind which is not so much an expression of sorrow and remorse as it is an expression of thanks, which rises now as we are gathered here, saying in utmost simplicity and sincerity, "We thank thee God for the life of Dr. Charles H. LaWall."

If we listen still more attentively with ears sensitive to the reception of things spiritual, we can feel the response from our departed friend saying appreciatively and with considerable satisfaction, "How fine that we are still together."

In the death of Dr. Charles H. LaWall we have lost a highly respected friend and associate. The profession of pharmacy has lost an ardent, dynamic worker and the world has lost a gentleman of high degree.

## THE REVISION COMMITTEE OF THE UNITED STATES PHARMACOPOEIA

Represented by Dr. E. Fullerton Cook, Chairman of the  
Revision Committee

**C**HARLES HERBERT LAWALL, whose distinguished career closed but a few weeks ago stands forth conspicuously among the Pharmacopœial revisers of his generation. His keen intellect, his consuming search for knowledge, and his willingness to share what he knew, formed a combination of qualities which peculiarly fitted him for participation in the work of revision.

Rarely has one come to the Revision Committee so fully prepared as was Professor LaWall to assume the responsibilities of revision work. His experience had included intimate contacts with those who made the standards, those who strove to enforce them, and the manufacturer whose products are involved, and he therefore had a breadth of vision and an understanding of the task which gave exceptional authority to his opinions.

Professor LaWall was splendidly trained technically. His lectures before his students reflected his extensive reading and study; his contributions to scientific literature and especially his co-authorship of widely used and authoritative text and reference books, and his years of experience with a wide variety of analytical and assay methods formed a background of rare and comprehensive knowledge.

But it was more than technical knowledge or training which gave distinction to Professor LaWall's Pharmacopœial associations. For almost a half century he maintained a spirit of reverence for the U. S. P. To him it was a privilege to assist in the revision and he approached every Pharmacopœial task with a deep sense of duty, accepting the assignment as an obligation which he must assume for his profession.

His enthusiasm in Pharmacopœial activities was always inspirational and throughout his life it continually occupied a dominant place. As a youthful apprentice in the drug store he became very familiar with the then official Pharmacopœia, the 1880 revision, and practically memorized its pages. During his student days he used it constantly as it formed the text for most of his classes. As an employed analytical chemist and later in his own laboratory its tests



were frequently the basis for standardization or for court action. The Pharmacopœia frequently provided the theme for his own College lectures and the nucleus about which his text and reference books were written.

In Professor LaWall's researches into the history of medicine and pharmacy he especially reveled in the study of early Pharmacopœias of which he personally possessed many of the most famous. His illustrated lecture before the Revision Committee at one of the conference meetings, carrying the records back to Egypt on the history of the Pharmacopœias of the world, was a fascinating and illuminating experience.

In the Pharmacopœial organization he served in many capacities. As a young man he was closely associated with the Chairman of the Committee of Revision, Professor Remington, from 1900 to 1910, unofficially participating in many activities of the Revision Committee. He was a delegate to the U. S. P. Conventions of 1910, 1920 and 1930 and was elected a member and secretary of the corresponding Revision Committees. During each of these three decades he served as chairman of a sub-committee and a member of the Executive Committee and from 1918 to 1920, following the death of Chairman Remington, he was made General Chairman of the Committee, carrying it most efficiently through the closing years of that decade. In 1920 he declined the chairmanship of the committee, but as a committee member and sub-committee chairman gave of his counsel freely, and continuously, in intimate association with the present chairman, and assisted in the solution of many general and technical questions.

To the Pharmacopœia he brought unwavering loyalty, a high degree of scientific and practical knowledge, and a tact and courtesy which inspired confidence and friendship. He won the respect and admiration of all who knew him and his death has brought a distressing loss to the Pharmacopœial organization.

We bow to the inevitable. We mourn the absence of our friend and associate. We hold his memory in deep affection and are grateful that it was given us to serve by his side through so many happy years.

## THE FRANKLIN INSTITUTE OF PENNSYLVANIA

Represented by Dr. Henry Butler Allen

**D**R. LAWALL graduated from the College of Pharmacy in 1893. We can picture him then as a young, enthusiastic idealist, eager for further research in the field to which he had elected to devote his life, but keenly aware also of all scientific activities in the city. He joined the Franklin Institute in 1894. A few years before the Franklin Institute had just held the first international electrical exhibition ever to be held in the world. Through its journal, its lectures, its award of medals, it kept pace with advancements of science and kept the public ever alert and acquainted with new developments. It was inevitable that a young man eager for learning, such as Dr. LaWall was, should ally himself with a scientific institution offering always a broader horizon.

From the time he joined the Institute in 1894 until his death he was keenly interested and was ever an enthusiastic member. Because of his devotion to his own life work at the College of Pharmacy, Dr. LaWall never held office in the Franklin Institute. We always felt, however, that he was a staunch supporter and was a young man whose record made us proud to have his name on the membership of the Franklin Institute.

As we all know, Dr. LaWall, in his earlier days, was associated with Dr. Henry Leffmann, another well-loved member of our society. Together they published a paper in the Journal of the Franklin Institute on "Rootbeers."

Men like Dr. LaWall, who because of their intense interest in human nature, can make all those with whom they come in contact intensely aware of their virility, seem marked for distinction and, as in his case, achieve outstanding prominence in their chosen fields. More than that, however, they are able to cultivate a charm of personality which redounds to the good of all their fellow beings.

Dr. LaWall, as a familiar figure, will be sadly missed by all. I am sure you will agree, however, that such was his influence, he will live forever in the life of your institution.

# THE BUREAU OF FOODS AND CHEMISTRY OF THE COMMONWEALTH OF PENNSYLVANIA

Represented by Elmer E. Harter, Jr., Director

**I**T IS with a spirit of humility that I begin my brief remarks on this occasion. For, after all, what words are there, what words can there be, which could fittingly characterize and honor Dr. Charles H. LaWall. Sometimes words seem so empty, so void of true expression. This is one of those occasions. Speech cannot contain our love for him. There was, there is, no gentler, stronger, manlier man. To know him was to love him.

With the passing of our colleague, his State, our State, has sustained a serious loss. He became a member of the Board of Chemists of the Department of Agriculture shortly after the turn of the century and remained so till he was called to his reward. I can conceive that he quickly became its outstanding member and there is no question that he was so when my association with him began.

I, of course, can speak of him best through my own association with him. Several years ago, I first met him, but it seems like yesterday. Never will I forget my first impression, which will remain a lasting one. An indomitable personality, evidenced partly by a firm handshake, a smile radiating warmth, eyes clear, keen and friendly, twinkling with humor and a head graced, yes, blessed with a shock of beautiful gray hair. My first impression—I was “at home,” at once in his presence.

He presided over meetings of our board for many years. In matters pertaining to our type of law enforcement, he possessed a most keen mind. Many a discussion arose, sometimes heated ones. Always attentive, the slightest detail never escaped him. He was frank in expressing his opinion in agreement or disagreement, but always respectful to the opinion of his associates. If those opinions did not agree with his honest, sincere beliefs, he offered his own, but never in a manner which would tend to humiliate or discourage his associates.

His experience was broad, fortified by an unusual storehouse of knowledge. His contributions to the board based thereon have become the foundation of and paved the way for Pennsylvania to

become the leader of her sister states in food regulatory work. His colleagues regret his passing. We will miss him greatly. We will miss his presence, his fellowship, his counsel. But we are the better for having known him. If he could speak to us, I am confident his words would be "Carry on." I am equally confident that he has received the blessing of his Creator, "Well done, thou good and faithful servant."

Four days before his death, I wrote Dr. LaWall a letter in which I expressed my feeling for him by a quotation. It fittingly expresses my feeling and that of my colleagues today.

"A poet once this sentence penned,  
The man is rich who has a friend—  
I read it and I thought, 'How true!'  
He must have had a friend like you."

\* \* \* \* \*

Peace to the soul of Charles H. LaWall.

## THE WAGNER FREE INSTITUTE OF SCIENCE

Represented by Dr. S. C. Schmucker, Dean of the Faculty

I FIRST knew Dr. LaWall through his closest friend. Dr. Henry Leffmann had a great desire to help young men find themselves and he did this for many of us. Of them all Dr. LaWall stood in the front. Dr. Leffmann spoke of him often and always in terms of the highest esteem. It was he who saw to it that Dr. LaWall got to the Wagner Institute in 1910. I had joined the Institute two years previously, but our work there is such that only one lecturer is there each evening. Hence we could be colleagues for some time with very little contact. But the Director, who hears us all, tells me that Dr. LaWall was just as eager and faithful there, as he has always been, wherever he taught. The work appealed to him thoroughly. Of his pupils perhaps half, in the early days, had never had even a high school training and most of them could not have been there if it were not for the fact that there was nothing to pay. But to these people he was as earnest as to the better trained students he met elsewhere.

One of my latest meetings with Dr. LaWall was through the mistake of a secretary. Dr. LaWall had then given way to Dr. Ivor Griffith, but was still listed as an Honorary Professor. By mistake he received a call to a faculty meeting. He came, and at once picked up his old interest in our problems and became the unofficial head of the meeting. We all listened to him with deep respect and profited by his counsel.

Of late years, several times the same thought came to me as I sat and listened to him. The poet and the painter have taught us to picture the aureole as clinging about the head of "just men made perfect." It seemed to me that to the head of this noble man the aureole had already clung; Charles LaWall had his heavenly decoration while still on earth.

## THE PENNSYLVANIA PHARMACEUTICAL ASSOCIATION

Represented by Dr. Ambrose Hunsberger, a Former President  
of the Association

**S**PEAKING as a former President of the Pennsylvania Pharmaceutical Association I desire to pay a brief, though no less sincere, tribute to the constructive efforts in the growth and development of this Association during many years by Dean LaWall, and to express on behalf of the Association the profound sorrow and deep feelings of regret that fill the hearts of its members for the irreparable loss they have sustained through the death of a most distinguished colleague, kind friend and loyal supporter of the Association.

During his many years of membership in the P. Ph. A. Dean LaWall was a tower of strength and a compelling influence in building up an organization dedicated to consistent and continued betterment of pharmaceutical education and practice. In the effort to achieve that objective he gave prodigally of his time and of his talent. By his own diligent work and unflagging zeal in the interest of the Association he set an example which inspired others to carry the torch onward. He possessed the ability to perceive latent talent and the rare quality of being able to develop it and direct it into practical and constructive channels. He was a leader along constructive instead of selfish lines in his Association work. He was frank in his denunciations of objectionable practices and equally frank in bestowing his praise upon ethical and praiseworthy efforts.

Dean LaWall was a member of the P. Ph. A. for more than four decades, having joined the Association in 1895. In 1912 he was elected as the fourth life member of the Association. He was elected President of the Association in 1910 and presided at the thirty-fourth annual convention held at Bedford in June, 1911. During the period of his membership he served ably on many committees, the more notably including those On Drug Adulterations, Botany, Chemistry, Education, Legislation, Proctor Memorial Fund and Public Information. He also served for a number of terms as Chairman of the Committee on Papers and Queries in which capacity he inspired the presentation of many interesting and instructive papers. It was his particular delight to see the younger members respond to his invitations and present papers setting forth their thoughts and conclusions on pharmaceutical subjects.



Dean LaWall was himself a prolific contributor, rarely failing at any convention to present one or more timely papers on matters of pharmaceutical interest. As a matter of historical record a list of the titles of forty-three of his contributions is submitted. During many years Dean LaWall acted as delegate from the P. Ph. A. to meetings of the Delaware, Maryland and New Jersey associations as well as to the American Pharmaceutical Association.

It was a privilege for the P. Ph. A. to have Dean LaWall make these, and other contacts, in its behalf. His rigid adherence to high ethical standards in practice, his respect for the traditions of pharmacy, his unswerving defense of pharmaceutical prerogatives, his withering contempt for those who would besmirch the banner of pharmacy through fraudulent practices, and the exemplary pattern of the life he, himself, lived, inspired the respect of those with whom he came into contact and redounded to the credit and dignity of the Association he so ably represented.

While the P. Ph. A. mourns the passing of this versatile and lovable member yet its pangs of sorrow are somewhat mitigated by a feeling of joyousness in the recollection that he lived and mingled with us, planning, working, accomplishing, smiling, adding his quota to the richness of life which would indeed be desolate and dreary without the presence—temporary though it be—of such men as Dean LaWall. He has gone to join the lengthening list of distinguished members of P. Ph. A., who have left the impress of their well spent lives for us to contemplate and, perhaps, emulate. To that immortal galaxy which includes such men as Remington, Sadtler, Kraemer, Wilbert, Walton, Lemberger and many other exemplars in their chosen calling we now add another star whose earthly light has been dimmed—Charles Herbert LaWall.

In conclusion may I paraphrase a tribute paid to another great scientist, substituting the name of LaWall for that of Noguchi. If the grave is the end of all life then Charles H. LaWall's name will forever remain immortal through the great contribution he has given to pharmacy; but if the grave be the gateway to some future state of existence then Charles Herbert LaWall, in conjunction with the great illustrious immortals that have preceded him beyond the Great Divide to sleep in eternal rest, will forever be revered, honored, and remembered by grateful pharmacists for having given of his today that others may have theirs tomorrow.

PENNSYLVANIA PHARMACEUTICAL ASSOCIATION COMMITTEES ON WHICH CHARLES H. LAWALL HAS SERVED

- Committee on Adulterations, 1900 (Chairman); 1901; 1902.
- Committee on Botany, 1897; 1898; 1901; 1903 (Chairman).
- Committee on Chemistry, 1902 (Chairman).
- Committee on Drug Markets, 1917; 1918; 1919; 1920.
- Committee on Education, 1927; 1928.
- Committee on Legislation, 1912; 1924; 1925; 1926.
- Committee on Papers and Queries, 1899 (Member); Chairman, 1904, 1905, 1906, 1907, 1908, 1909.
- Committee on Patents and Trade-Marks, 1913; 1914; 1915; 1916.
- Committee on Proctor Memorial Fund, 1911 (Chairman); 1913.
- Committee on Publications, 1925.
- Committee on Public Information, 1924; 1925.
- Committee on Publicity, 1915 (Chairman); 1916; 1919; 1921; 1922; 1923.

SERVED AS DELEGATE TO

- American Pharmaceutical Association, 1914; 1915; 1919; 1920; 1921.
- Delaware Pharmaceutical Association, 1917; 1918.
- Maryland Pharmaceutical Association, 1911.
- New Jersey Pharmaceutical Association, 1905; 1906; 1908; 1909; 1913; 1915; 1916.

PAPERS PRESENTED AT PAPER AND QUERIES SESSIONS CONVENTIONS OF PENNSYLVANIA PHARMACEUTICAL ASSOCIATION

- 1895—"Some Commercial Aloins."  
"Some Laboratory Notes."
- 1896—"Solid Extracts."
- 1897—"Analytical Processes."
- 1898—"Laboratory Notes."
- 1899—"Laboratory Notes."
- 1900—"Bookkeeping for Druggists."  
"Laboratory Notes."
- 1901—"Deterioration of Artificial Foods."  
"Tabulation of 1000 Prescriptions."
- 1902—"Adulterated Asafoetida."
- 1903—"Syrup Calcium Lactophosphate."
- 1904—"Detection of Aniline Colors and Salicylic Acid in Article of Food."  
"Priestley as a Prophet."
- 1905—"Vanillin."



- 1906—"Detection and Estimation of Boric Acid."
- 1908—"The Label and the Law."
- 1909—"U. S. P. Exsiccated Salts and Their Preservation."
- 1911—"Detection and Estimation of Talc in Some Forms of Confection."
- 1912—"The Comparative Alkaloidal Strength of Hydrastis Rootlets and Rhizome."
- 1913—"A Simple and Convenient Device for Handling Hot Evaporated Dishes."  
 "Chemistry and Practical Jokes."  
 "Landmarks of Pharmacy."  
 "The Detection of Cane Sugar in Honey."  
 "What is the Quality of Pancreatin on the Market?"
- 1915—"What is Rice Powder?"
- 1916—"Some Specific Points in Which Pharmacists Come Into Contact With the Food Laws."  
 "The Percentage of Alcohol in Home-Made Root Beer."  
 "Syrup of Tea for Iced Tea" (Jointly With Mrs. LaWall).
- 1917—"Coriaria Myrtifolia as an Adulterant of Sweet Marjoram."  
 "Contamination of Wild Cherry Bark With Metallic Iron."
- 1918—"Hot Cocoa."
- 1919—"Pharmacy as a Hobby as Well as an Interest."
- 1920—"Making Use of National and State Bulletins."
- 1921—"Sour Salt, a New Synonym for Tartaric or Citric Acid."  
 "Visiting Old Friends."
- 1922—"Etymology and Pharmacy."  
 "Anatomical and Chemical Studies of the Sand Spur" (Jointly With H. W. Youngken).
- 1923—"A Mere Seller of Drugs."  
 "Who is Responsible for the Sub-Standard Chemicals in Manufacturing and at the Prescription Counter?"
- 1924—"Diethylphthalate in Distilled Extract of Witch Hazel."
- 1926—"Pharmacy in 1776."
- 1927—"The Progress of Pharmaceutical Education."

**THE ALUMNI ASSOCIATION OF THE PHILADELPHIA  
COLLEGE OF PHARMACY AND SCIENCE**

**Represented by the Present President, John E. Kramer**

**J**UST thirty years ago, the Alumni Association of the Philadelphia College of Pharmacy had as its president one Charles H. LaWall, at that time only fourteen years a member of the association, and but seven years an instructor in this institution. During the previous year, 1906-7, he had been first vice-president, and in 1905-6 he had started his career "through the chairs" with his election as Second Vice-President.

A perusal of the minutes of the meetings held the year in which Dr. LaWall headed his Alma Mater's ever-growing body of graduates, brings to the reader's attention the fact that even then, at the age of thirty-six, he was a natural leader, forceful and thoughtful. At that time, the Alumni Association was not open to all graduates of the College, as it is today for those who complete regular courses of study as well as for those who have pursued the shorter certificate courses. President LaWall, however, saw the wisdom of having an all-inclusive organization, and introduced measures which brought this about.

In 1907, a graduate's chances of having his name maintained on the College's permanent mailing list were rather remote, as no concerted effort was made, then, to follow the Alumni through the numerous changes of address made by any group of men as large and as active as those in retail pharmacy, and in the many pursuits followed by men and women who had had training in pharmacy. Realizing that P. C. P. graduates always consider their Alumni Bulletins as welcome messages from home, Dr. LaWall went to great pains, and spent no little time and energy in bringing the mailing list up to date. As a result of this original impetus, and the continuous efforts of the permanent Alumni officers today, there are more than 6000 names of living alumni to whom the Bulletin is sent each month.

Alumni presidents, however, soon become past-presidents, and, as such, receive notices of each meeting of the Board of Directors, so that the officers and directors may have the pleasure of their company, and the wisdom of their advice. It is in this role that most of us remember Dr. LaWall, for there were few directors' meetings that he missed, and there were even fewer decisive actions taken by

the Association without consulting him and relying upon his excellent judgment. Mrs. LaWall, who was Association president in 1931-32, was his constant companion at these meetings.

Dr. LaWall was ever-conscious of the social value of a live group of graduates. He gave close scrutiny to each Founders' Day Reunion and Alumni Day program, well in advance of its final adoption. His splendid and inspiring talks at alumni dinners, and the annual dinners to the graduating classes, will long be remembered by those present, to whom his spoken word was well worth returning for.

I believe that I speak for every graduate in each one of the forty-eight States in our Union, and in the countries beyond the borders of our United States, when I say that the issue of the College Bulletin telling of Dr. LaWall's death was the saddest of all of the various numbers of the thirty volumes printed to date. I believe that I further voice their opinion in the statement that the College and the Alumni Association have lost a great leader, and that the hitherto well-plotted seas of progress will seem to us much more difficult of travel without his personal guidance.

His memory, however, shall be our pilot light. We cannot really say, "Long *may* it live" for we are confident that, as long as the Philadelphia College of Pharmacy and Science, and its Alumni Association live, so will the memory of Charles H. LaWall.

### THE PHILADELPHIA BRANCH OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

Represented by Dr. W. A. Pearson, Dean of Hahnemann  
Medical College

**D**R. KENDIG, Chairman of the Local Branch of the American Pharmaceutical Association and Dean of the Temple University School of Pharmacy, has commissioned me to represent the local branch.

Secretary Kelly has ably represented the American Pharmaceutical Association of which Dr. LaWall was the National President in 1920.

The Philadelphia Branch of the American Pharmaceutical Association was organized in 1907 under the able chairmanship of Professor Joseph Price Remington and a group of comparatively young men enthusiastically supported the organization. In fact so great was the interest that a special scientific section was established in 1909 and in 1911 Charles LaWall was chairman of the local branch. Many interesting and scientifically valuable meetings were held during that period. Dr. LaWall always took a leading part.

Professor Remington told me personally at that time that his associate, Professor LaWall, was destined to become one of the greatest men in American pharmacy. This prophecy certainly came true and none of his intimate associates will challenge the statement that he was the peer of all.

His alert mind absorbed and retained the most detailed and intricate scientific information and his personal charm fitted him admirably to be a worthy successor to Professor Remington.

While we all mourn our loss, this should not be a time of sadness but a realization of the joy and benefit we have all had in knowing such a remarkable man as Charles LaWall.

## THE STUDENT BODY OF THE COLLEGE

Represented by Warren R. McPeck, President of the  
Student Council

**M**R. CHAIRMAN, Members of the Faculty, Student Body, and honored guests, we are gathered here today to pay our respects to the memory of our beloved and departed Dean, Charles H. LaWall; a man who has endeared himself into the hearts of all of us who knew him.

In representing the student body on this occasion, words are inadequate to express the deep grief which we feel. We regret the passing of a man of high ideals, of friendly hospitality, and of a man whose interest in Pharmacy has added many chapters to the advancement of our profession. I think that we should all feel grateful to the Almighty that in our day has lived a person who has contributed so much to our profession, so much to the research and educational phases of our life's work. What can I, as a representative of the student body, what can I add to his memory that has not already been written in the book of fame? To know Dr. LaWall, as members of the faculty have known him, to know him as we members of the student body knew him was indeed a rare honor, an honor that we shall always cherish in our memories.

To those who have a vague knowledge of Death, it would seem perhaps that he is gone from our lives forever, but to those who have come in direct contact with him, is known full well that his achievements and his friendship will remain forever theirs—a living, joyous and glorious inspiration.

## LAWALLANA

Out of the bounties, and beauties of his and others' writings we quote these few passages, and so pay tribute to his versatile ken and pen.

"I HAVE been blessed in many ways. A mother who taught me with such loving thoroughness, that I was exempted from the first four grades of school. A father, who as pharmaceutical preceptor and trusted companion and advisor, gave me my earliest inspiration in reading and studying and in my desire to acquire an education. Friends of my boyhood and college days to whom I owe much more than I can ever repay, and who still remain my friends. Associates and assistants in whom I can freely rest my faith and last but not in any sense least, a wife who has been a companion and a perennial inspiration. What more could a man desire?

And through all these years I have dreamed dreams and had visions.

I have dreamed of pharmacy as an honored profession and have tried to make my dream come true in my own practice and in sharing my vision with the thousands who have been my pupils during the last thirty years.

I believe in pharmacy. In the glory of its past, the achievements of its present and the greatness of its future."

(From an address given in 1928 upon the occasion of the Remington Medal Award to him.)

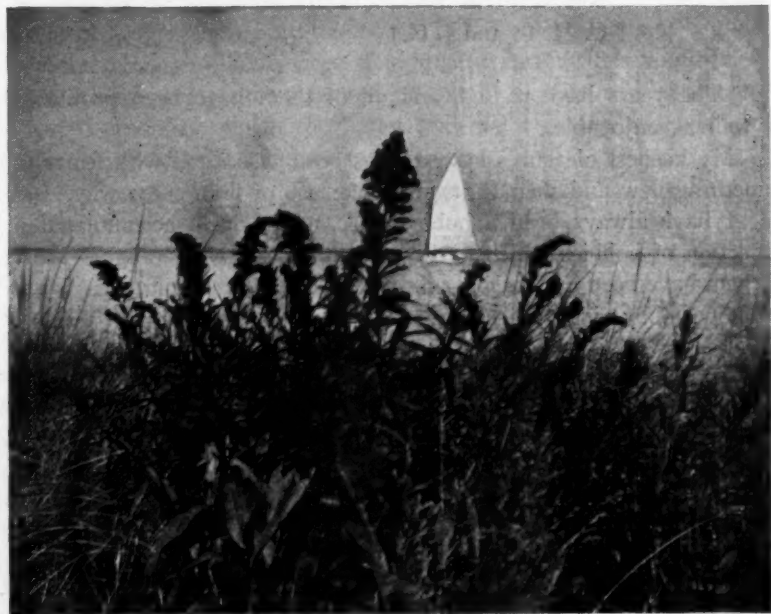
"As regards science in general, Dickens evidently had no respect for it and was constantly poking fun at it. Science is exceedingly vulnerable in this respect and it is easy to ridicule what one does not understand. The attitude of Dickens probably grew out of his limited education and the fact that he was occasionally called upon to report scientific meetings for which he had neither sympathy or understanding. This is shown by his article on *The Mudfog Association*, which is surpassed as a satire on science only by the jokes in student journals in high schools and colleges, and these emanate from the same underlying cause—a lack of understanding of the real mission of science."

(From *The Pharmacy and Science of Dicken's writings*.)



"As we pass a marshy woods, the silvery, silky undersides of the swamp magnolia leaves are visible in all directions, and one longs for the fragrance that surrounds the spot in early June, when their tightly wrapped, cream white buds shed a woody odor, which often perfumes the air for miles at a stretch. Here we pass a thicket, in the midst of which the tall and stately Turk's cap lily, having just completed flowering, thrusts its fruit up conspicuously, while along the very edge of the road the day lily, too, is noted in the fruiting stage. Here a rag weed flaunts its hay fever-compelling blooms and there the coarse sow thistle stands up in vulgar arrogance.

The tall wool grass beckons us to take it along for a decoration lasting all the year, while the beggar's ticks and tickseed dare one to venture within their reach.



SEASIDE GOLDEN ROD

(Photograph by C. H. L.)

An old, neglected clearing, once a cultivated field, affords a rich botanical repast. Here is the brilliant bloom of the orange milkweed, almost recumbent, while quite near and much higher are

the purple globular flower clusters of the common milkweed, already beginning to shed their silky plumes from earlier borne flowers. Underfoot is the self-heal, while its distant relative, the horse-mint shows in scattered clumps of purplish brown.

The delicate purple *Gerardia* monopolizes the open spaces, while just inside the dry woods, at the edge of the clearing, is seen its yellow-flowered cousin, the downy false foxglove. Along the hedgerow is a purple-flowered spirea, and a patch of tansy and a mulberry tree are evidences of a former habitation, of which the ruins of an old cellar wall give confirmation. Here, too, is blue vervain and scattered about in profusion may be seen black-eyed Susans, wild sunflowers and boneset."

(From *Visiting old friends*, being a report of a joyous botanical trip through the Jersey wilds, undertaken by C. H. L. and I. G.)

"The years have passed, and all of them have been profitable as well as enjoyable.

My keenest pleasures have always been associated with learning something new and then trying to make use of it in some way.

I have always been a hobby rider, and I have accumulated a collection of hobbies which cover an exceedingly wide range. Most of them have been useless, but all of them have been profitable. Only a fellow hobby rider can understand such a contradiction in terms."

(From a letter to I. G.)

"The evolution of the nostrum, that blot upon scientific medicine and pharmacy, for which both professions are jointly responsible, is a separate story altogether. From these mysterious polypharmaceutical monstrosities which were evolved by the physicians of the seventeenth and eighteenth centuries and used by them as secret remedies, has developed the modern nostrum traffic, a veritable Frankenstein taking toll in the United States alone to the extent of more than \$200,000,000 annually, or enough to endow pharmaceutical and medical education and research for the permanent benefit of mankind; but the people must have their illusions at any cost, and the more intelligent people become and the greater the amount of popular education, the more credulity there seems to be about medicines. This has had a bad effect upon the practice of medicine itself, for probably in consequence



of a hereditary professional inferiority complex, medicine has turned in part to therapeutic nihilism, and as a by-product of this trend has been the development of "bone bouncers" and many other well known 'pathics and 'practics, who owe their practice and their success to 'Romance,' in a different sense, however, from that in which it is used in this lecture."

(From one of his Lectures.)

"The world's business affairs are carried on in these times in a cold-blooded, matter-of-fact way, and at a breathless rate of speed. The world's scientific progress is concerned with things intangible, yet real, and is developing along lines that makes Jules Verne look like a timid writer with a dearth of imagination and an inferiority complex.

As a temporary relief from the stress and turmoil of the rapid current of progress one may find solace in the quiet havens of bygone literature. In many easily accessible 'quaint and curious volumes of forgotten lore' are found scattered fragments of fact and fiction, of faith and credulity, which the finder may use as warp and woof in weaving a pattern of romance to his liking."

(From an essay on old books.)

"We went in search of flowers the other day where the deer-trail leaves the White Horse Pike and winds its way to Weymouth. This is a country-side rich in floral treasures, with every month, from Spring to Fall, a time of new display. Cedar water, brown as the back of a wood-thrush, silently—solvently—spreads through tangled wilds, diffusing everywhere its living vigor, and sand that elsewhere might have stayed as sand is here a soil inspired. For sheer variety of bush and bloom it is rare to find a soil so spendthrift. There are lush spots for the waterlovers and high and dry spots for greens less demanding. The soil's potential hydrogen cavorts over an obliging range, and for the humblest lichen to the tallest pine, the bogs distill a perfect benediction.

Small fruit plants, the cran, the rasp, the black and the huckle grow here with gay abandon, yet in season wondrously heavy with berry.

The hardy evergreens and ericaceous plants divide the humus heath beneath them, but leaving room, and room enough for a vast array of others of God's green children.

Here, in certain secluded spots, when April rains away the remnant snows, one may gladly go arbutusing and elsewhere in September see the swaying cardinal flower, like a crimson flamingo, knee deep in water, peeping through smilax curtains at its landlubber, but not less lovely, blue brother lobelia.\*



WILD CARROTS IN AUTUMN

(Photograph by C. H. L.)

And here, in season, and in the proper places are orchids exotic,—the pogonias, arethusas, cypripediums, ladies' tresses, and here too are the sundews, the liatris, the rues, the mints, and oddly enough a queer cactus or two."

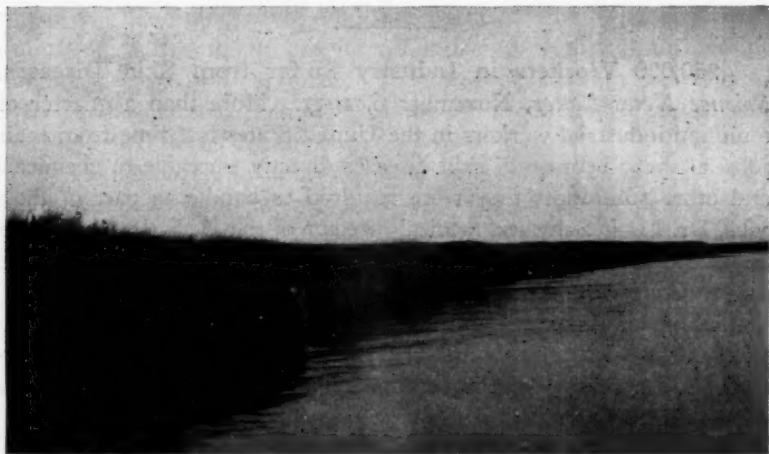
(I. G. hereabove describes their flower-searching haunts in the Jersey woods.)

"I stood beside a man† the other day who stared through the crystal of the bookcase at the drab green-covered volumes of *Barton's Flora*. Outside, crisp snowflakes played merry tunes on the frozen strands of a winter wind. The earth about glistened with immaculate whiteness, and men preferred to stay close to crackling coals, so biting and chill was the weather. The man slowly lifted his gaze from the flower books and said, 'Let us go botanizing, boy,' and promptly from the hearts of both of us there rushed a passion that sent blood cells caroming to every peripheral corner. For we two had tasted before,

†Charles Herbert LaWall.

the blessed privilege of field communion, and we had walked together in languid happiness through avenues of tall trees skirted with a myriad blossoms. Together we had long since learned that the Lord lingers close by His flowers, and that the open hearted can always find Him there.

But, soliloquizes a reading Thomas, how botanize when the pond where lilies live is locked in rigid iciness, and the murmuring brook whose moist banks kept sweet the violet and the modest gold-cup, runs silently through awkward rifts of sodden snow. The feathered folk have traveled far away to sing their songs to other ears, and only the chirping sparrow and the raucous crow remain behind to pick our crumbs and keep our company. The breezes of evening no longer carry on their wings the fragrance of the honeysuckle, and the warm amours of the pines, but only a chilly crispness and a smell of soot and sulphur.



WHERE TIDES AND MEADOWS MEET—ON LONGPORT BAY  
(Photograph by C. H. L.)

But the man who said 'Let us go botanizing, boy,' is a Man of Hope, and his words came to being so spontaneously that I knew that his eye peered through the mantle of snow and saw a dainty blossom, waiting for its day of unfolding. To him, the migrating robin red-breast sings only wearily on the mesquite down Mexico way, and it

longs and longs and longs to come home with spring, to be once again the joyous, vigorous song bird of the Philadelphia morning.

He knows full well that the frost on the lily pond will vanish with spring. He knows that the violet beneath its snow coverlet only sleeps, and that morning will soon come when it will yawn itself into a fragrant existence. He knows too that the breeze of the evening will again carry to his soul the breath of sweet flowers; that the feathered folk who flew away will come again another day, to sing in sweeter tones than ever, their God directed melodies.

For it is Faith in a return of the Flowers, Hope for health to live and enjoy them, and Love of Nature and its God-director—Faith, Hope and Love, these three—that makes it possible for this man even in the dismal days of a wintry spring to say,

‘Boy, let us go out among the flowers.’ ”

(From I. G.’s scrap book.)

### **250,000 Workers in Industry Suffer from Skin Diseases.**

*Science News Letter*, November 6, 1937. More than a quarter of a million industrial workers in the United States lost time from their jobs last year because of skin diseases directly traceable to chemicals and other substances they were required to handle as part of their jobs, Dr. Louis Schwarz, medical director of the U. S. Public Health Service’s dermatoses investigations, declared before the National Safety Congress.

Many of these workers develop allergies, states of super-sensitivity, to the particular substances with which they come into contact, Dr. Schwartz stated in recommending increased safety measures to cut down on industrial hazards.

Each case of industrial skin disease costs on an average \$200, he asserted,—\$100 as compensation to the workman and a like amount for medical care.

Blondes and fair-skinned people are more susceptible to skin trouble from chemical irritants than are darker, oily-skinned people, his survey showed. Some workers, on coming into contact with a chemical, may develop a slight form of skin disease and after that be immune but many do not ever become so immune.

Lack of cleanliness in the shop as well as on the part of the individual, was blamed as a primary contributing cause. L. G.

## ABSTRACTS FROM AND REVIEWS OF THE LITERATURE OF THE SCIENCES SUPPORTING PUBLIC HEALTH

Bacteriology . . . . .	Louis Gershenfeld, B. Sc., Ph. M.
Biochemistry, Nutrition, etc. . . . .	Arno Viehoever, Ph. D.
Biology . . . . .	Marin S. Dunn, Ph. D.
Chemistry . . . . .	Arthur Osol, Ph. D.
Pharmacy . . . . .	E. Fullerton Cook, Ph. M. and their assistants

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**The Assay of Pill of Iron Carbonate.** C. G. Lyons and F. N. Appleyard. *Quart. Journ. Pharm. Pharmacol.*, 10, 343 (1937). In previous communications it has been shown that potassium dichromate is an unsatisfactory oxidizing agent for the volumetric determination of iron in the presence of reducing sugars, as in the assay of saccharated iron carbonate. In place of potassium dichromate it has been suggested that ceric sulfate be used, the latter not being reduced by interfering sugars.

The authors now apply the ceric sulfate titration to the assay of iron carbonate pill and compare the accuracy of the determination with the British official method of analysis, which consists of titration with potassium dichromate in the presence of diphenylamine, and with a method determining ferric iron before and after oxidation with potassium permanganate. They have also made tests to determine the suitability of phenylanthranilic acid as an internal indicator in ceric sulfate titrations of ferrous iron. This indicator was found to give a sharp color change at the end-point, the solution changing from colorless to deep pinkish-violet when excess of ceric sulfate is added to an acidified ferrous sulfate solution. The authors believe this indicator to be more satisfactory than ferrous *o*-phenanthroline complex ion.

The following recommended method has been found to give accurate results in the determination of ferrous iron in the presence of reducing sugars: Digest about 2 grams, accurately weighed, of the pill of iron carbonate with 8 cc. of cold 25 per cent. w/v sulfuric acid until the mass has disintegrated. Dilute with about 20 cc. of water,

and titrate with N/10 ceric sulfate using phenylanthranilic acid as internal indicator.

A. O.

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**The Assay of Citrated Ferrous Chloride.** C. G. Lyons and F. N. Appleyard. *Quart. Journ. Pharm. Pharmacol.*, 10, 348 (1937). In view of the authors' work which shows that potassium dichromate does not give accurate results in the determination of ferrous iron in the presence of reducing sugars an investigation was made to determine whether citric acid also interferes in this determination. That it does was clearly demonstrated in the results of titrations of a solution of ferrous sulfate in the presence and in the absence of citric acid. The same inaccuracy was evidenced in titrations of citrated ferrous chloride with potassium dichromate (the British official method) and with a ceric sulfate solution. The proposed method is as follows: Dissolve 0.5 gram, accurately weighed, in 20 cc. of dilute sulfuric acid, and titrate with standardized approximately N/10 ceric sulfate solution using phenylanthranilic acid as an internal indicator.

A. O.

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**Notes on the Determination of Ferrous Iron in Pharmaceutical Preparations.** G. J. W. Ferrey. *Quart. Journ. Pharm. Pharmacol.*, 10, 351 (1937). The investigation discloses the following findings: (1) That sensitive xylene cyanole FF, in the absence of phosphoric acid, is a satisfactory internal indicator for titrations of ferrous iron with ceric sulfate; (2) that diphenylamine may be used use an internal indicator in the determination of ferrous iron with ceric sulfate, provided that a high concentration of phosphoric acid is present; (3) in titration of ferrous iron with potassium dichromate using potassium ferricyanide external indicator strong solutions of the latter, as recommended in the British Pharmacopœia, are not particularly sensitive; (4) phosphoric acid should not be used in determinations with potassium dichromate employing ferricyanide indicator; (5) the official assay for ferrous iron in citrated ferrous chloride gives results which are about 10 per cent. too high; (6) titration with iodate or with ceric sulfate is satisfactory for the determination of ferrous iron in citrated ferrous chloride; (7) determination of ferrous iron in glycogelatin capsules cannot be accurately made with potassium dichromate due to oxidation of glycerin; (8) because ceric sulfate is not affected by glycerin, gelatin, acacia or



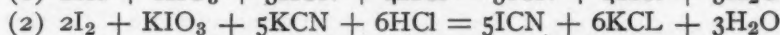
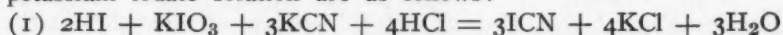
sucrose, this reagent is available for the determination of ferrous iron in glycogelatin capsules; (9) if phenol has been used as a preservative of glycogelatin the ceric sulfate determination of ferrous iron enclosed in capsules made of this material is influenced by oxidation of phenol.

A. O.

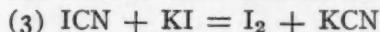
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**The Assay of Solutions of Iodine.** C. Morton and F. R. C. Bateson. *Quart. Journ. Pharm. Pharmacol.*, 10, 498 (1937). The method described in this paper is applicable to determinations of both free and combined iodine in the same sample of solution, being devised particularly for the analysis of the four solutions official in the British Pharmacopœia. The solution to be assayed is mixed with 5 cc. of a 10 per cent. solution of potassium cyanide and 10 cc. of hydrochloric acid, diluted to 150 cc. in a long-necked flask and titrated with M/40 potassium iodate, using starch mucilage as indicator (titer designated *a*). An excess of potassium iodide is then added and the liberated iodine titrated with N/10 sodium thiosulfate (titer *b*).

The chemical reactions which take place during titration with potassium iodate solution are as follows:



The reaction which underlies the second part of the analysis is:



From a theoretical analysis of the equations it can be shown that combined iodine = 0.003172 (*5a-2b*) grams; free iodine = 0.006345 (*2b-3a*) grams; total iodine = 0.003172 (*2b-a*) grams.

Mixtures of iodide and iodate may also be analyzed by this method in which case different calculations are employed. A. O.

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**A Color Test for Thiamin (Vitamin B<sub>1</sub>).** H. Tauber. *Science* 86, 594 (1937). A few milligrams of thiamin and about five milligrams of p-dimethylaminobenzaldehyde are placed in a small crucible. One-tenth of a cc. of glacial acetic acid is added and the mixture heated until all the acid has evaporated. After cooling, one drop of glacial acetic acid is added. An intense brick red color develops immediately. The red color is probably a Schiff's base, as most primary amines readily form colored condensation products with aldehydes. Proteins and amino acids interfere. A. O.

**Manganese Butyrate—Effects of Sterilization by Heat.** T. H. Hopper. *The Pharmaceutical Journal*, 140, 3870 (1938). In the investigation of the behavior of solutions of manganese butyrate when sterilized by various methods, solutions containing 0.1 per cent.; 0.5 per cent., and 1 per cent. w/v of manganese butyrate were subjected to (a) heating to 80° C. for one hour; (b) steaming for one hour, and autoclaving at 115° C. for one-half hour. On cooling all solutions except the 0.1 per cent. solution heated to 80° C showed a precipitate or discoloration. A determination of the amount of loss of manganese in the sterilized solutions showed an increase with the rise of temperature. The results when 3 per cent. w/v of sodium thiosulfate and 0.5 per cent. w/v sodium chloride were added to 1 per cent. butyrate solution proved to be even a greater loss than when manganese butyrate alone was used. From these results the author concludes, solutions of manganese butyrate in the generally employed strengths cannot be sterilized by a method involving heat and must be sterilized by filtration.

H. P. F.

**New Pneumonia Serum Provides Treatment for 90%.** *Science News Letter*, Dec. 25, 1937. Because of researches at the Rockefeller Institute of Medical Research the manufacture of the new serum for Type III pneumonia will be possible after the first of the year. Together with Types I, II, V, VII and VIII, Type III pneumonia makes up the bulk of the all pneumococcus pneumonia cases. The life saving results of pneumonia serums depends on early and accurate diagnosis of the ailment. The importance of having facilities available for making laboratory tests to show what type of pneumonia the patient suffers from is stressed, the serums only being effective in the particular types of pneumonia for which they are made.

H. P. F.

**The Occurrence of Estrogenic Substances in the Ovaries of Echinoderms.** J. K. Donahue and E. D. Jennings. *Endocrinology*, 21, (5) 690, (1937). The wide distribution of estrogenic substances in nature has become increasingly evident. Such substances have recently been extracted from swordfish ovaries, and the object of this investigation was to determine the presence or absence of estrogenic substances in lower marine forms.

The ovaries of *Lytechinus variegatus* swollen with ripe follicles were ground thoroughly and extracted with 95 per cent. ethyl alcohol. After concentration by distillation and repeated extractions with ether and subsequent concentration, a light oily layer and a heavy gummy layer separated.

Six mature female rats were spayed and left untreated for ten days during which time daily diestrous smears were obtained. Three animals were given subcutaneously 0.3 cc. of the light fraction, taken up in corn oil, for ten days. The remaining three animals received a comparable dosage of the heavy fraction. In two of the three animals of the first group active growth was noted in the germinal layers of both uteri and vaginae, while the same tissues in the second group presented the characteristic histological picture of castration atrophy.

The reaction of the first group is considered to be a threshold response since full estrous smears were not obtained. It is estimated that 4.2 gm. of ovarian substance (dry weight) contain at least 1 R. U. of estrogenic substance. I. C.

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**The Use of Zinc Peroxide in Microaerophilic Infections.** J. E. Rhoads, *Surgery* 2(6) 937, (1937). The peculiar value of zinc peroxide lies in its ability to liberate oxygen over a period of several hours which renders it nearly specific in certain anaerobic infections. It is practically devoid of irritant properties. Recent reports have shown the value of the use of zinc peroxide in a variety of lesions due to anaerobic and microaerophilic infections.

This contribution presents two typical cases of chronic undermining ulcer on leg due to microaerophilic hemolytic streptococci. Both cases healed rapidly after the use of zinc peroxide which was applied in the form of a thin paste directly to the ulcer and covered with a wax paper or gauze impregnated with zinc oxide ointment to prevent drying. A thin cake is usually formed, moulded by the walls of the ulcer. This should be removed daily and replaced with fresh paste. Before its use in the paste, the zinc peroxide is heated to 140° C. for four hours. This precaution insures the availability of the oxygen from the compound, which seems to differ in preparations of varied commercial origin. Zinc peroxide, when diluted to a white-wash consistency, may be introduced into the large bowel with impunity and has proved useful in the treatment of a case of perirectal

abscess associated with a non-hemolytic streptococcus which grew anaerobically.

I. C.

### Drugs Transmitted Through Breast Milk, Part I: Laxatives.

R. M. Tyson, E. A. Shrader and H. H. Perlman, *Journ. Pediatrics*, 11 (6) 824, (1937). A study of drugs administered to nursing mothers in respect to their elimination through breast milk is one of interest and importance not only to pediatricians but also to clinicians, obstetricians, nurses, mothers, and all individuals interested in child welfare. The following two problems presented themselves for clinical investigation: (1) If drugs are transmitted through breast milk, can their effect become injurious to the child. (2) If it is possible for certain drugs to pass through breast milk, would it be desirable to attempt to medicate the child by means of drugs administered to the mother.

Prior to the clinical and chemical investigations, a questionnaire was mailed to five hundred pediatricians and obstetricians in the United States in order to obtain some idea as to the relative experience. One hundred and fifty-one answers were returned, and a summary of experience of clinicians in this field of investigation. Of this number three hundred and thirty were as follows:

Question 1. From your experience, do you know of any specific instances in which cathartics administered to lactating mothers were transmitted through their breast milk and produced a laxative effect or colic in nurslings? If so, will you kindly give details.

Answers: 115 yes, 192 no, 41 were questionable, 3 did not answer.

Licorice powder	3 instances	Vegetable cathartics	3 instances
Castor oil	12 "	Podophyllin	1 "
Phenolphthalein	16 "	Jalap	1 "
Saline cathartics	17 "	Citrate of magnesia	7 "
Cascara	40 "	Milk of magnesia	10 "
Aloin	4 "	Aloes	5 "
Lady Webster pills	1 "	Calomel	2 "
A. B. S. & C. pills	1 "	Alophen pills	1 "
Rhubarb	2 "	Ex-Lax	1 "
Sal Hepatica	1 "		

Question 2. Do you know of any specific instances (not speculative) in which fresh fruit in season or canned fruits, or foods taken by a lactating mother, produced a laxative effect or colic in her nursling?

Answers: 50 yes, 269 no, 19 were questionable, 13 did not answer.

Question 3. Do you know of any specific instances in which any drug other than cathartics or laxatives administered to lactating mothers was transmitted through their breast milk, and produced an untoward effect in nurslings?

Answers: 76 yes, 240 no, 18 were questionable, 17 did not answer.

The results of the first part of the study dealing with laxatives, conducted at Temple University Hospital, are summarized as follows:

(1) From chemical analysis no trace could be found of the transmission of phenolphthalein, calomel, senna, or rhubarb through breast milk.

(2) Aloin gave positive evidence of transmission through breast milk but 87.5 per cent. of the positive cases gave no clinical evidence of affecting the child. Therefore the quantities transmitted were too small for any laxative action.

(3) Cascara gave both chemical and clinical evidence of transmission and it is therefore concluded that cascara can be transmitted through breast milk.

(4) In the cases of aloin, phenolphthalein, and calomel the clinical evidence in the chemically controlled experiments is in accordance with that found in the preliminary series (without chemical control).

(5) Rhubarb gave no clinical evidence whatever, therefore it is concluded that no transmission takes place.

I. C.

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**Viruses Do Not Always Cause Disease Symptoms.** *Science News Letter*, December 4, 1937. Most people think of viruses as the

invisible cause of certain diseases. Infantile paralysis, influenza and the common cold, smallpox and various other human ails are virus-caused. Domestic animals are affected by virus-caused diseases such as hoof and mouth disease, and plants are attacked by still other viruses.

Tobacco mosaic is a well-known virus disease of plants. Viruses can even attack bacteria, the micro-organisms commonly called germs. Bacteriophage, used to fight certain kinds of disease, is regarded by many as a virus that attacks bacteria.

There are viruses, however, which can exist in the body without producing any signs of illness. Besides being so small as to be invisible—no microscope is powerful enough to make them visible—viruses can also be "inapparent." This adjective is applied by Dr. E. V. Cowdry, professor of cytology at Washington University of Medicine, in a report to the *Scientific Monthly*. Even the dread infantile paralysis virus is inapparent much of the time, Dr. Cowdry points out. It is estimated that many children and at least four-fifths of the adults living in cities have mild, undetected attacks of infantile paralysis which give them immunity or protection against further attacks. Otherwise, during epidemics of infantile paralysis, many more persons would be sick than actually are.

Many of the inapparent viruses, however, are unknown, or known only to scientists, working in this particular field. Some of them became known by accident. These viruses produce changes in some of the cells of the body, but the changes are not great enough to cause illness. If tissues containing these inapparent viruses are ground up, dissolved and injected into other animals, and the process repeated through several transfers, the virus may finally become apparent and cause signs of disease.

L. G.

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**The Use of Arsenicals in Diphtheria Carriers.** Iancou and Co-Workers; through *Am. J. Diseases Children* 54, 1109 (1937). Diphtheria carriers in child welfare institutions were treated successfully by nasal instillation of aqueous solutions or suspensions of arsenical preparations. Neorsphenamine was found to be the most satisfactory one of those used.

L. G.



**A New Tuberculin Test.** H. Vollmer and E. W. Goldberger. *Am. J. Diseases Children*, 54, 1019 (1937). A new tuberculin patch test is presented in the use of an adhesive plaster on which is placed a square thin filter paper saturated with Old Tuberculin. A similar 0.8 cm. square saturated with bouillon is used as a control. Of 209 tuberculosis children, 89.5 per cent. showed conformity between the results of this patch test and the von Pirquet test. Dry filter paper squares can be kept indefinitely.

L. G.

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**Attempted Chemical Isolation of the Virus of Poliomyelitis.** H. Brown and J. A. Kolmer. *Proc. Soc. Exptl. Biol. Med.* 37, 137 (1937). An attempt was made to isolate the virus of poliomyelitis by the procedure used by Stanley (*Science* 81, 644 (1935)) for the isolation of tobacco mosaic virus. Though the virus could not be isolated, the evidence indicates that it is a chemical (protein) agent or closely associated with it.

L. G.

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**Present Status of Preventive Inoculations Against Whooping Cough.** L. Sauer. *Am. J. Diseases Children* 54, 979 (1937). A review of the literature on whooping cough vaccination reveals that immunization with potent antigen confers protection on a high percentage of children. Occasional failures occur. Vaccines used by various authors are described. The earliest age at which active immunization can be conferred has not been established. The second half-year of life is probably the best time for preventive inoculation. The use of horse serum as an ingredient of the media used in preparing the vaccines is to be avoided.

L. G.

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**Therapy of Bang's Disease by Prontosil.** H. Ahringsmann. *Munch Med. Wochschr.* 84, 1778 (1937). A case of undulant fever in a man was successfully treated by the use of the oral administration of Prontosil. An agglutination test two months after admission was negative. A marked drop in fever was noted even on the first day of treatment. Its successful use in other cases of this malady was reported by other workers.

L. G.

**New Process Sterilizes Wool Without Damage.** *Science News Letter*, November 13, 1937. A way to sterilize wool fabrics without injury to fibers is expected to become commercially applicable shortly because of research by three U. S. Department of Agriculture workers, Ruth Elmquist, James Kettering and Harry Humfeld.

The new process consists of heating the wool material either in the organic liquid xylene or Stoddard solvent and tetrachloroethylene. Any process previously used to kill microorganisms in wool also damaged the material itself.

Wool blankets and clothing need to be made germ free both to prevent spread of disease and to prevent damage to the wool itself by mildew. Hospitals, the Army and other organizations are expected to use the new process.

L. G.

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**Milk-Borne Streptococcic Infections.** E. L. Stebbins, H. S. Ingraham and E. A. Reed. *Am. J. Public Health*, 27, 1259 (1937). An analysis of 1529 cases of streptococcus infection occurring in seven epidemics in New York State during the period 1934-1936 was made with the following striking results.

That each outbreak was milk-borne was established beyond a reasonable doubt. Each outbreak was explosive in character and the elimination or pasteurization of the incriminated milk supply was followed by a marked decline in case incidence. Each epidemic was characterized by an age distribution typical of milk-borne outbreaks, a higher proportion of cases occurring among adults than among children.

The source of the contaminations was found to be cows suffering from acute mastitis in six out of the seven epidemics. In the seventh outbreak the streptococci were traced to a person who had bottled and capped the milk by hand and who had suffered at that time from an acute sore throat.

The spread of the infection once established in a number of individuals was both rapid and extensive by direct contact. The clinical diagnosis of such infection was described in some cases as scarlet fever and in others as septic sore throat with the only distinguishing characteristics between the two being the appearance of a rash in the case of scarlet fever.

The effect of various factors which might be expected to influence susceptibility to infection were studied. No evidence of age or sex selection was found. Dosage of the infectious material seemed to be an important factor in determining whether or not a given individual became ill. A previous attack of scarlet fever seemed to produce little or no immunity to an attack of milk-borne streptococcus infection but it did lessen the probability of the development of a rash. It was also found that an attack of milk-borne streptococcus infection accompanied by a rash reduced the skin sensitivity to standard streptococcus toxin whereas an attack of septic sore throat did not. The susceptibility to infection, however, not being lessened it seems that the intradermal skin test cannot be used to test an individual's susceptibility to the more serious complications of the infection.

When one realizes that in this group of 1529 cases, all directly traceable to infectious milk, there were twenty-four deaths and doubtlessly many permanent impairments of health, the significance of this study is obvious and the danger of milk as a source of infection should not be overlooked.

L. F. T.

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**Digitalis and Calcium Synergism.** H. Gold and N. Kwit. *Science* 86, 330 (1937). Experiments were published by Gold and Edwards in 1927 which showed that hypercalcemia resulting from injection of calcium chloride or the parathyroid hormone rendered the normal dog more susceptible to the action of ouabain. This synergism has been reported by many other workers and two fatalities have been known to follow an injection of calcium gluconate into a digitalized patient.

Contradictory results of Nahum and Hoff appear questionable since their test animals were rabbits which are known to rapidly excrete digitalis in such a manner as to make synergism impossible following the testing procedure used by these workers. As a consequence, the danger of digitalis and calcium synergism should continue to be carefully considered.

L. F. T.

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**Observations on Vitamin C Therapy in Experimental Polio-myelitis.** C. W. Jungeblut and R. Feiner. *J. Exp. Med.* 66, 459-479 (1937). In a previous paper the authors presented some rather

striking results demonstrating that with the administration of vitamin C 30 per cent. of monkeys with poliomyelitis escaped paralysis, whereas in controls only 5 per cent. escaped such paralysis.

In view of the fact that the virus failed to produce paralysis in 100 per cent. of the controls it was suggested that variations in natural resistance occurs in normal animals. In order to ascertain the various factors involved in such resistance and to further study the effect of vitamin C, further investigations were undertaken with the following results in brief.

Natural vitamin C was found to be decidedly superior to the synthetic product, protecting about three times as many animals from paralysis as the synthetic C and resulting in the protection of about 32 per cent. of all animals against paralysis.

The number of cases developing atypical paralysis was about the same when both the natural and synthetic vitamin were administered.

The administration of vitamin C on the third day of infection appeared to produce a more favorable result than beginning the dosage on the first day. Larger doses of vitamin C apparently are to be desired for effective action on the fourth and fifth days. The problem of dosage is complicated by the fact that the largest dose is not always optimal, this is particularly true in the first few days of the infection.

The mechanism by which vitamin C accomplishes its therapeutic effect still remains obscure. Obviously the simplest explanation would be to assume that ascorbic acid, not unlike a chemotherapeutic agent inactivates poliomyelitis virus directly in the central nervous system, particularly since the latter can be shown to store this substance. Such inactivation would then be largely non-specific since ascorbic acid, properly adjusted for pH, has proven capable of inactivating by direct contact *in vitro* every toxin and virus that has been investigated. In spite of this, *in vivo* results have been obtained only with diphtheria and tuberculosis as the outstanding examples. This would suggest that vitamin C may conceivably act in a more specialized manner in certain types of tissue injury by enhancing the mechanism of natural defense. The irregularity of the therapeutic effect observed would also plead in favor of a complex reaction mediated through the cells, rather than for a direct virucidal action. If the role of vitamin C is a physiological one then it may be postulated

that its regulation of the oxidation-reduction potential of cellular respiration results in an increased supply keeping the oxidation-reduction system of the nerve cells at such a level that the oxylabile virus is restrained from intracellular propagation. Although this suggestion is hypothetical, it is in harmony with the observations of Brodie and Wortis (*Arch. Neurol. and Psychiat.* 32, 1159 (1934)) who have demonstrated a diminution of the oxygen consumption rate of nerve tissue infected with poliomyelitis.

In an accompanying paper Jungeblut and Feiner report that whether or not an animal escapes the damaging effects of poliomyelitis virus depends upon the capacity of their tissues to utilize vitamin C. In every case of escape from paralysis high vitamin C levels were found in the tissues. The inability to utilize vitamin C apparently explains its failure to protect some animals. L. F. T.

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**Nicotinic Acid in the Prevention of Pellagra.** *Science Supplement* 86, 12 (1937). Patients in certain southern hospitals suffering from pellagra, a dietary deficiency disease characterized by serious skin and nervous disorders, are now being given doses of nicotinic acid to test its pellagra-curing power.

These experiments follow the successful treatment of black-tongue in dogs, a disease considered to be analogous so far as its etiology is concerned, with pellagra in humans.

Pellagra has frequently been termed the "hard times disease" in the South since the diet on which the poor subsisted in such times was restricted to salt pork, mush, and molasses, a combination almost devoid of this factor.

Nicotinic acid, which may prove to be the anti-pellagra vitamin is present in small amounts in various plant and animal tissues and it is also present in tobacco. The mechanism of the action of nicotinic acid as suggested by Drs. Elvehjem and Madden of the University of Wisconsin is that this acid is present, and therefore essential, in one of the enzymes that transfers oxygen from the blood to the body cells. Apparently animals can not build the vitamin from food compounds but must get it from outside sources.

It is interesting to note that a crystalline principle described as a nicotinic acid amide has been obtained from liver. This principle has proven equally as effective as nicotinic acid in the treatment of black-tongue in dogs.

L. F. T.

## BOOK REVIEWS

Done by persons, unafraid to upbraid, but perfectly willing to give praise where praise is really due.

PHYSIOLOGICAL CHEMISTRY OF THE BILE. By Harry Sobotka, Chemist to the Mt. Sinai Hospital, New York. Williams & Wilkins Co., Baltimore. \$3.00.

In an address at the opening of exercises of the 1937 session of the Columbia University School of Medicine, Dr. Lewis said: "I sometimes think that men are needed who can arrange in synthesis the facts already discovered, more than we need new facts." If this view be correct—and the reviewer believes that it is—then an author who presents a work which correlates all the experimental investigations in any field of knowledge has rendered a real service to science.

Such a task has been undertaken by Dr. Sobotka in this volume. He has studied the reports of investigators on the chemistry and physiology of the bile which have been published, not only during the last twenty or thirty years, but for a century back and even quotes some of the speculations of the ancients concerning the functions of this secretion. The thoroughness with which his work has been performed is indicated by the fact that he lists, by title, some 1200 papers consulted.

But a mere mechanical collection of 1200—or of 12,000—abstracts of the literature is of small service to science; as pointed out in the quotation from Dr. Lewis given above, these facts must be "arranged in synthesis." Dr. Sobotka has welded together this mass of experimental data into a single, logical and readable volume. The book opens with a brief summary of the physiology of bile formation and the quantity of bile secreted and then takes up the chief themes of the work which are: the chemical constitution of bile, the effects of drugs and diet on biliary secretion, and the role of bile in normal health. There is scarcely a question which any one may ask concerning the biliary function in health or disease but what the available knowledge can be gleaned from this work.

To all students of this subject who desire a more detailed account of this function of the liver than is found in text books of physiology the book is highly recommended.

*H. C. Wood, Jr.*



## IN MEMORIAM

### CAROLYN GRIFFITH

Only the fool considers the grave  
The definite end of the day;  
Death is a bend in the road for the brave  
And the burial a rest on the way!

During my editorship of this little journal it has been my hurt, severally, to report, a little while past, the death of my good parents, the Reverend John Griffith and Anne Griffith, and more recently, that of my golden friend, Dean Charles Herbert LaWall.

And now, tearfully, I report the passing to a belonging sleep, of my beloved wife, Carolyn, who, after years of patient suffering, though reluctant to leave her own, willingly smiled at Death, as she had long laughed with Life.

A tender wife, a devoted mother, substantial in her faith, and loyal in her interests (not the least of which was this Institution) she leaves to mourn her, and to imitate her, two daughters, Doris and Gwen, and her husband.

Until we are again together, God grant her His beloved sleep.

She was so gentle, good and kind,  
I do not think the Lord would mind  
My saying this—  
That had she lived two thousand years before,  
Carolyn, Mother of Christ—we'd now adore!

